

CLAIMS:

1. A valve train assembly comprising:

a valve train carrier having a plurality of individual rocker arm fulcra;

and

5 a plurality of rocker arms, each rocker arm being attached to a respective fulcrum and being pivotable about the fulcrum;

characterised in that the assembly has been manufactured separately from, but is operatively attachable to, an internal combustion engine such that the rocker arms are movable by cams in order to operate valves of the engine.

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2. An assembly as claimed in claim 1, wherein each fulcrum forms part of a lash adjuster.

3. An assembly as claimed in claim 2, wherein each lash adjuster
15 is an hydraulic lash adjuster.

4. An assembly as claimed in any preceding claim, wherein each rocker arm constitutes a lever of the first order.

20 5. An assembly as claimed in any preceding claim, wherein each rocker arm has a part-spherical surface for mating with a corresponding surface of the fulcrum to which it is attached.

6. An assembly as claimed in any preceding claim, wherein each rocker arm has been formed by deformation of a sheet.

7. An assembly as claimed in any one claims 1 to 4, wherein each
5 rocker arm has been formed by deformation of a sheet, said deformation also forming a part-spherical surface for mating with a corresponding surface of the fulcrum to which the rocker arm is attached.

8. An assembly as claimed in any preceding claim, wherein the
10 rocker arms are all of substantially the same length.

9. An assembly as claimed in claim 8, wherein the rocker arms are substantially identical.

15 10. An assembly as claimed in any preceding claim, wherein each rocker arm is provided with a resilient apertured member for fitting over the associated fulcrum in order to attach the rocker arm to the fulcrum.

11. An assembly as claimed in claim 10, wherein each apertured
20 member is a resilient sheet.

12. An assembly as claimed in any preceding claim, wherein each rocker arm has a pivoting-member for engaging a valve.

13. An assembly as claimed in any preceding claim, the assembly also having mounted thereto at least one camshaft.

5 14. An assembly as claimed in any preceding claim, the carrier having formed therein channels for conveying oil to the fulcra.

15 15. An assembly as claimed in any preceding claim, wherein each rocker arm carries a roller for engagement with a cam of a camshaft, and
10 wherein each roller has a substantially flat cylindrical outer surface.

16. An assembly as claimed in any preceding claim, the carrier supporting rocker arms for inlet and exhaust valves for a plurality of cylinders.

15 17. An internal combustion engine having a valve train assembly as claimed in any preceding claim, the engine comprising a plurality of cylinders each having inlet and exhaust valves, said carrier supporting rocker arms for said inlet and exhaust valves.

20 18. A method of assembling an internal combustion engine, the method comprising:

- (a) providing a valve train carrier having a plurality of individual rocker arm fulcra;

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- (b) attaching a rocker arm to each fulcrum; and
- (c) mounting the carrier with the attached rocker arm on a cylinder head which has been manufactured separately from the carrier such that each rocker arm is brought into functional relationship with a respective engine valve.

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19. A method as claimed in claim 18, the method including the step of mounting at least one camshaft to the carrier before mounting the carrier on the cylinder head.

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20. A method as claimed in claim 18 or claim 19, wherein each rocker arm is mounted to a respective fulcrum by means of an apertured sheet which is snapped-fitted over the fulcrum.

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21. A method as claimed in any one of claims 18 to 20 including forming each rocker arm by deformation of a sheet.

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22. A method as claimed in claim 21, including forming a part-spherical surface on each rocker arm by deformation of said sheet for mating with a corresponding part of a fulcrum.